agri-fax Alberta AGRICULTURE

Agdex 420/21-2
March 1989

Fall Calving of Beef Cows

The potential for higher conception and weaning rates, price premiums and the elimination of calf scours are among the reasons some Alberta beef producers have switched from spring calving their herd to fall calving. This factsheet presents the changes recommended and production expectations of a fall-calving beef herd.

When considering a new method of production, an assessment of the relative advantages and disadvantages can be helpful.

Advantages to Fall Calving

Breeding
- higher conception rates
- easier inspection of cows and bulls during breeding season
- if using A.I., easy detection of cycling cows in confined area

Health
- cows calve in better conditions on spacious, dry, clean pastures
- less dystocia and stronger calves that require less assistance
- lower calf death loss from birth to weaning
- reduced weather risk during calving
- scours and pneumonia virtually eliminated in baby calves
- if in blackfly area, older calves are more adaptable to fly problem and there are no fly problems during breeding period
- calves wean easier because they are accustomed to dry feed, presence of people and confined surroundings

Feeding
- competition for feed before calving non-existent since animals are on pasture
- if hay supplies are depleted by spring, there is no need to buy top quality hay for cows since calves have been weaned
- top quality hay is usually cheaper in fall than spring
- less wastage of top quality hay since it is fed in fall and winter when ground conditions are dry and firm
- less time for top quality hay to deteriorate in storage because the best hay is fed in early winter
- more dry pregnant cows can be carried on the same amount of pasture. Marginal pasture would be suitable
- if feeding calves to finished weight, it is likely more efficient because of reduced weather stress and cattle are younger

Economics
- weaned calves gain efficiently on pasture, and pasture gains are relatively inexpensive compared to winter gains for spring born calves
- price premium of 3 to 5 per cent for calves at weaning
- up to 24 per cent price premium for cull cows in spring
- potential for increased returns

Disadvantages to Fall Calving

- a higher level of management is required during winter
- overall need for more top quality feed
- suckling calves must be fed a palatable creep feed
- winter feed costs are higher
- calving season coincides with grain harvest
- A.I. or breeding takes place in cold weather
- cows must be pastured close to yard during August and September (for supervision and use of hospital area if required)

Feeding Program

The total feed required for a fall-calving system is not different than that for spring calving. However, because feed quality and availability as well as environmental conditions are different, the feeding program must be carefully considered and planned.

Cows

Pre-Calving (May to Mid-August) - The easiest feeding period for the fall-calving cow is the grazing period from spring until mid-August when calving starts. The only precaution is to ensure that a body condition score of 2.5 to 3 is achieved by calving time. Green forage will likely provide enough protein, energy, vitamins and minerals to meet the cow's needs. It is also a good time to use native bush and marginal pastures. Forcing pregnant dry cows to browse on leaves and twigs is acceptable because

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they do not need good quality tame pasture at this time. One method of managing yearlings or replacement heifers with dry cows on the same farm is to have the young stock graze pasture first. The older dry pregnant stock can then follow, grazing the aftermath left by the young cattle. A free choice offering of trace mineral fortified salt is the only supplemental feed required in most cases. There is potential for economic gain by capitalizing on the lower nutrient requirements of the dry cow. Careful planning is required for this advantage to be turned into dollars.

Calving (Mid-August and September) - Cows should be moved to pastures that are easily supervised for calving. These pastures should also be of better quality than those used during the pre-calving period. Either previously grazed pastures or hay fields that have good regrowth are suitable. Hay fields have an advantage over previously grazed pastures because they are uncontaminated by cattle parasites and diseases and therefore are ideal for calving. Cereal stubble grazing may be acceptable if sufficient green growth is present.

Use trace mineral fortified salt. A salt and mineral mixture containing 35 to 50 per cent range mineral (eg. 18:18) is recommended even if pasture is of good quality. Twenty years of fall-calving experience at Fairview College indicates that nutrition at this time is critical.

Post-Calving (October) - The cow-calf pairs can stay on pasture after calving as long as forage remains plentiful and is of high quality. Do **not** permit a drop in cow condition. The manager must closely supervise the herd because weather, forage quality and forage availability can change rapidly during the fall. Cows suckling calves are much more sensitive to a lack of nutrients than spring calving cows. Feed good quality hay or grain if forage quality and quantity deteriorates. Begin full winter feeding as soon as pastures are finished.

Hay or silage made from perennial forages is usually low in phosphorus. Forty to 80 grams of a 1:1 mineral containing at least 14 per cent phosphorus should provide enough supplemental phosphorus to meet a cows needs. Trace mineral fortified salt should also be available, but vitamin supplementation should not be required until 60 days after cows have been grazing green grass.

Breeding To Weaning (November to March) - The full winter feeding program should begin by the time breeding starts. Consider the sample rations in table 1 to be the minimum amount of feed required for this period. Vitamin A supplementation should also begin at this time. Lactating cows require 60-70,000 IU of vitamin A per day. Since the vitamin A value in feeds varies considerably, supplementing the full amount required is recommended. This practice is cheap and safe.

Table 1

SAMPLE RATIONS FOR THE LACTATING COW
(amount per head per day)

	1100 lb Body Weight Average Milk Yield	1300 lb Body Weight Superior Milk Yield
1. Alfalfa-Grass Hay	27 lb	30 lb
Barley Grain	—	4 lb
18:18 Mineral	45 grams	70 grams
2. Barley Straw	16 lb	19 lb
Barley Grain	8 lb	11 lb
32% Supplement	2 lb	3.5 lb
3. Barley Straw	7 lb	10 lb
Alfalfa Hay	20 lb	22 lb
18:18 Mineral	45 grams	70 grams
4. Barley Silage	57 lb	65 lb
Barley Grain	0 lb	3 lb
18:18 Mineral	20 grams	45 grams

Note: Amounts do not include feed wastage

Table 2

SAMPLE RATIONS FOR COWS IN SECOND TRIMESTER OF PREGNANCY
(amount per head per day)

	1100 lb Body Weight	1300 lb Body Weight
1. Alfalfa-Grass Hay	22 lb	25 lb
2. Barley Straw	16 lb	18 lb
Barley Grain	4.5 lb	6 lb
32% Supplement	1.0 lb	1.0 lb
3. Barley Straw	16 lb	18 lb
Alfalfa Hay	7 lb	10 lb
18:18 Mineral	23 grams	35 grams
4. Barley Straw	12 lb	14 lb
Barley Silage	24 lb	28 lb
18:18 Mineral	23 grams	23 grams

Note: Amounts do not include feed wastage

Cold stress can be minimized by following the procedures outlined under the facilities section of this fact sheet; however, adjustments to the feeding program will be required. Cattle produce heat as a normal by-product of digestion, metabolism and activity. A lactating cow produces more heat as a by-product of increased digestion and metabolism and therefore can withstand lower temperatures than a dry cow. This means that a smaller share of feed is used for heat production leaving a larger share for productive purposes. Wind increases a cows need for energy. Wind protection during winter is required for all beef cattle, regardless of when they calve.

Post Weaning (March to May) - The cow's feed requirement is reduced by about one-third after weaning. The risk of energy-requiring, cold weather stress is also lower during late winter and spring. From weaning until turnout to grass, dry cows can use poor quality forage. Loss of body condition can be tolerated provided that the loss is not too rapid (not more than ¾ lb per day) and the cow does not fall below a condition score of 2. Trace mineral fortified salt and vitamin supplementation is required. If straw or badly weathered hay is fed, some energy (eg. grain) and protein (eg. canola meal or commercial supplements) may be required in moderate amounts.

Calves

Creep Feeding - Calves of most beef breeds are capable of gaining at least two pounds per day from birth to weaning. In the first two months of life, the calf can achieve this rate of growth on its dams milk alone. By the time the calf is three months old however, the milk supply will not sustain this level of growth. Spring-born calves make up the difference by grazing. For the fall-born calves, however, hay and silage quality is often not equal to pasture quality. Also, access to the cow's feed supply is usually restricted for calves unless additional feeding space is provided for the whole herd. The reasonable solution is to provide a good quality creep feed that is available only to the calves (table 3). Creep feeding is cheaper and more effective than providing extra feed to the whole herd.

Whole, coarsely ground or rolled grains plus protein, vitamin and mineral supplements can be used in a creep ration for calves. Digestive disturbances and excessive fatness in calves are minimized if oats make up at least 50 per cent of the grain mix. The creep ration should contain 13 to 16 per cent crude protein. The 13 per cent protein level is acceptable if good quality alfalfa hay is offered in the creep area along with the creep ration. For more details on creep feeding see Agdex 400/50-4, available from Alberta Agriculture.

Table 3

CREEP RATIONS

Oats	22.0%	Oats	22.0%
Barley	52.0%	Barley	53.0%
32% Supplement	26.0%	Canola Meal	23.0%
		18:18 Mineral	0.5%
		Limestone	1.0%
		Salt	0.4%
		Vitamin ADE Premix	0.1%
	100%		100%

Post-Weaning - The feeding program after weaning depends upon whether the calves will be sold, go to pasture or stay in a feedlot.

For calves that will be sold soon after weaning it is best to leave them on the creep ration until the time of sale. By leaving the ration unchanged, one source of stress will be eliminated and weight gains from weaning to sale time will be maximized.

The quality of ration can be reduced for calves that will be pastured. This will save money and avoid over-conditioning of the calves. The calves should be left on the creep ration for 7 to 10 days after weaning. At that time reduce the grain portion to 2-3 pounds per head per day and maintain free choice intake of good quality forage. Gains of 1.25 to 1.5 pounds per head per day should be the goal. Table 4 provides example rations suitable for this option. These rations are also suitable for replacement heifer calves.

If calves remain in the feedlot from weaning until finishing, then feeding for a maximum rate of gain may be the most profitable option. Processed grain can be fed in gradually increasing amounts until the ration comprises 60 to 80 per cent grain. Aim for feedlot gains of 2.5 to 3.0 pounds per head per day. Table 4 provides some examples of rations for this option. Small-framed calves should be grown at lower rates of gain (ADG 1.5-2.0 lb) until they weigh 700 to 800 lb and then placed on finishing diets.

Table 4

WEANED CALVES

500 lb Body Weight, Large Framed Steer Calves

	ADG 1.5 lb	ADG 2.5 lb
1. Alfalfa-Grass Hay	11 lb	6 lb
Barley Grain	4.5 lb	9 lb
32% Supplement	—	1 lb
2. Alfalfa Hay	12 lb	7 lb
Barley Grain	3.5 lb	9 lb
3. Barley Silage	28 lb	15 lb
Barley Grain	2 lb	8 lb
32% Supplement	1 lb	1.3 lb

Note: Amounts do not include feed wastage

Early vs. Normal Weaning - Calves that readily consume creep ration can be successfully weaned at four months of age. This allows dry cows to be fed lower quality feed and calves to be fed the best quality feed in their rations. Early weaning results in more efficient use of feed resources.

An Ohio study (table 5) compared the performance of fall-born calves weaned at 110 days of age (early weaning) to those weaned at 222 days of age (normal weaning). Performance and feed consumption were measured for the period between early and normal weaning. Early weaned cow-calf pairs consumed 25

per cent less feed than normal weaned cow-calf pairs and were 43 per cent more efficient in converting total digestible energy into calf gain.

Under Alberta conditions early weaning (4 months of age) would likely occur in January or February while normal weaning would occur in March or April (6-7 months of age). Individual decisions as to when the best time to wean depend on forage resources and environmental conditions. However, operators should consider weaning well in advance of spring thaw when ground conditions become muddy.

The economic advantages of early weaning are much more apparent in a fall-calving program than in a spring-calving program, because stored feed is generally much more expensive than pasture.

Some producers using a fall-calving system do not wean until the following summer. This practice leaves little time for cows to regain body condition before fall calving and requires considerally more feed than early or normal weaning.

Weaned Calves On Pasture

On pasture, weaned calves can be managed like any other grass cattle. The calves will grow quickly because they are young. Large pasture gains can be achieved if excellent quality pasture is available.

On excellent pasture only trace mineral fortified salt is required to supplement the diet. As forage quality deteriorates phosphorus supplementation should be considered.

Bulls

Feeding and managing breeding bulls under a fall calving system is easier than managing bulls for spring calving. The nutrition provided during the pasture season will likely put adequate condition on bulls. The only real concern is that a condition score of 3 is reached before the breeding season. Maintaining this condition throughout the breeding season is easier in a fall-calving herd because bulls do not have to travel far to find cycling cows. Bulls can be fed the kind of ration that is given to cows as long as the quantity of feed is increased to compensate for the larger size of bulls.

After breeding, bulls can be fed medium quality forage and may loose some condition. They should **not** be allowed to fall below a condition score of 2. Adequate bedding, especially during cold weather must be provided.

Fertility

Cows calving in May through November generally start cycling earlier after calving than those calving in December through April. Nutritional level, breed (crossbred vs. purebred), age, body condition, milk ability, and length of daylight all influence the time required for cows to start cycling after calving. Cows that begin cycling early also calve earlier, which results in older and heavier calves for sale.

Table 5

Performance Of Early Versus Normal Weaned Cow-Calf Pairs

Calf Weight	Early Weaned Group (110 days)	Normal Weaned Group (222 days)
At 110 Days of Age	229 lb	237 lb
At 222 Days of Age	439 lb	383 lb
Gain	210 lb	146 lb
Cow Weight		
At Early Weaning Date	938 lb	989 lb
At Normal Weaning Date	944 lb	949 lb
Change	+6 lb	-40 lb
Daily Feed Consumption (from early to normal weaning dates)		
Cow - hay	25 lb	46 lb*
- grain	—	0.5 lb
Calf - hay	8.3 lb	—
- grain	1.5 lb	—
Total - hay	33.3 lb	46 lb
- grain	1.5 lb	0.5 lb
Efficiency of Energy Use		
Mcal of DE/lb of calf gain	20.8	36.5

* represents the amount of feed consumed by both the cow and the calf. (Peterson et al. 1987, J. Animal Science 64:15)

Table 6 shows that fall-calved beef cows ovulated or cycled sooner after calving and became pregnant earlier than spring-calved cows. In this study almost all of the fall-calving cows but only 56 per cent of the spring-calving cows had ovulated by 60 days after calving. Other research either reinforces this study or shows no differences in reproductive levels between spring- and fall-calved herds.

Table 6

Effect of Calving Season on Fertility*

	Calving Season	
	Spring (March to June)	Fall (August to November)
Number of cows	129	114
# Days Calving to Ovulation	59.1	32.0
% Cows Cycling by 60 Days After Calving	56	96
# Days Calving to Pregnant	102.9	74.7
% Pregnant by 100 Days After Calving	60	78

* Adapted from King, G.J. and G.K. MacLeod, 1983/1984. Anim. Reproductive Sci., 6(4):255-266.

Reproductive differences between spring- and fall-calving beef cattle are more likely expressed under conditions of stress such as low nutrition or less favorable environments (either extreme temperatures or muddy, wet conditions). In a confined environment, Fairview College found that fertility was improved in fall calving beef cows if 5 lb of grain was fed daily for 70 to 90 days after calving.

In Alberta, fall calves are weaned in early spring. From spring until calving in late August/September the cows are grazing without the calf at side. It is relatively easy for these cows to gain weight and condition score 2.5 to 3.0 at calving, and they will have enough condition to ensure a high level of fertility for the November/December breeding period. In contrast, spring calves are weaned in October/November and in many instances the cows must be fed to gain weight from fall to spring calving. If spring-calving cows are in thin condition in the fall, they will likely be thin at calving and have lower fertility at breeding time. Fewer thin cows become pregnant than cows in moderate body condition. One study showed 5 per cent of the thin cows calving early as compared to 56 per cent of the cows in good body condition. Because fall-calving cows are in better condition, they start cycling sooner, breed earlier and have a shorter calving interval than spring-calved cows.

A 45 to 60 day breeding period is recommended. If bulls are used rather than A.I., the bulls should be in excellent condition and well exercised and have had access to good pasture for the previous five months. Bull fertility and libido should be checked by having a qualified person assess the bull for structural soundness, sex drive, mating ability and semen quality and production. If new bulls are purchased, give them two months to adjust to the feed and the new environment. Since November and December are not traditional breeding months, excellent quality long yearling bulls (18 months old) may be readily available.

Because the cows are likely in a semi-confined feeding area during the breeding season, the bull does not have to travel far to find cycling cows. Therefore, some producers have increased the bull to cow ratio to 1:40. However, an extra bull is cheap insurance against a reproductive disaster. The breeding activity can be checked daily at feeding time and inactive or injured bulls can be identified and replaced immediately.

Health

Research results and producer experience shows that fall-calving herds have less calving difficulty, and very little scours or pneumonia, compared to spring-calving herds. This results in significantly less calf death loss. For example, one report found calf death loss at or shortly after birth at 1.2 per cent for fall-calving cows and 5.6 per cent for spring-calving cows on average. The report suggests that the spring-born calves (January to March) died due to wet and cold environmental conditions. Fall-born calves will generally mother up and nurse without assistance.

Fall-born calves are usually born in spacious, dry, clean pastures during warm weather. The risk of wet, muddy conditions is less when compared to spring calving. Although less calving assistance is required, routine checks and calving supervision are recommended, especially for first calf heifers.

At birth, calves should be ID tagged and dehorned. A selenium injection should not be required if the cow's diet has been adequate in selenium. In early November or immediately before the breeding season, calves may be branded, implanted (if not a replacement heifer) and vaccinated for the clostridial diseases (at least 2-way vaccines). Bull calves can be castrated at this time. Consult a veterinarian for recommendations on the use of other vaccinations required in your area. All calves should receive a clostridial booster vaccination and an IBR/PI3 vaccination, preferably before weaning time in late winter. If breeding females require IBR, BVD or vibrio (Campylobacter) vaccination, best results occur when the vaccinations are done at least 30 days before breeding.

Fall-born calves (less than 3 months of age) are too young in early November to treat for cattle grubs or lice with systemic insecticides. If required, the baby calves could receive a contact insecticide (any insecticide dust) for lice control. Considering the low incidence of warble infestation in fall-born calves, warble treatment could be delayed until late winter.

There are few reported cases of fall-calving cows having frozen or chapped udders and teats because cows are usually past their peak milk production when the cold weather hits in November. However, abundant dry bedding is recommended to reduce this risk. Frozen ears and tails on newborn calves are not a problem.

Getting Started With Fall Calving

Since the majority of beef cows are now calving in the late winter or spring, there may be some difficulty in starting a fall-calving program. Slightly different approaches are required depending on whether the program is starting from scratch or involves switching from spring to fall calving.

Alternatives For Switching From Spring To Fall Calving

a. Delay breeding your cows for 6 to 7 months after

the normal breeding season. This may be difficult to do because of cash flow commitments, but probably is the easiest method to manage.

b. Split the cow herd and delay breeding the late calvers.
c. Delay breeding replacement heifers. Delaying both the heifers and late calvers may be carried out together to speed up the change over.

Starting From Scratch

Purchasing a fall-calving herd is not likely possible. If spring-calving cows are purchased the alternatives already discussed apply.

a. Purchase virgin heifers. The investment can be kept to a minimum by purchasing light (350-400 lb) heifers and/or feeding for a moderate rate of growth (1.0 lb/day) through the winter. Moderate growth is acceptable because the heifers have an extra six months to reach the desired weight at breeding time. Of course, open heifers could be purchased any time up to breeding as long as the minimum target weight at breeding for the breed is reached. Pregnancy testing should be done 45 days or more after the end of the breeding season. This will allow selection of only pregnant heifers for wintering. Also, "surprise" spring calvings in heifers that were purchased just before your breeding season can be avoided.
b. Another alternative is to purchase late or summer-calving cows. These are likely the least productive cows. If this is the method chosen then purchase about 50 per cent more cows than needed and cull heavily after a short (45 day) breeding season. Avoid buying cows that are either not in calf or suckling a calf because they are likely to be infertile.

Facilities

Open front sheds, windbreak fences, bush or coulees all make acceptable shelters from the cold and wind. Wintering areas with a 2 to 6 per cent slope to the south and protected from the wind by bush or windbreak fences to the west and north are suitable locations. Remember, the wintering area will also be the breeding area in mid-November through December. Do not overcrowd cows and calves. If confined to a feedyard, provide a minimum of 300 square feet for the cow and 150 square feet for the calf.

Liberal use of straw for bedding throughout the shelter is recommended. Bedding packs will keep cows and calves warm and dry. Provide a minimum of 35 square feet of bedding mound for each cow and 25 square feet for each calf. The total bedding requirement will be similar to spring calving herds.

There are two ways of providing creep feed to the calves. The first is to locate the calf creep feeder within the cow wintering area. It should be a self feeder capable of holding at least a one-week supply of feed, of keeping the feed dry, and keeping cows out while letting the calves in. That can be accomplished by the design of the feeder or by a perimeter fence with two small entrances. Entrances in the fence which are 16 to 20 in. wide by 30 to 42 in. high will limit access to calves only. Provide 12 in. of feeding space for every 2 to 3 calves. Building plans are available through local extension offices.

The second alternative is to fence off a large separate area for the calves. Calves seem to enjoy a separate area away from the cows. The area should be big enough to accommodate the calf creep feeders (described above), several portable calf shelters, a straw mound and possibly a fence line hay feeder for high quality hay. Locate the calf area on a well drained site close to the cows bedding area.

If breeding is by AI, a small heated room located close to where the cattle will be inseminated should be available for thawing semen and storing supplies. When using a portion of the wintering shed for AI, an overhead heat lamp and squeeze gate are required to thaw semen and restrain the cows.

Marketing

Studying seasonal market trends can be beneficial when assessing the merits of a fall-calving beef program. Figures 1, 2 and 3 show the seasonality of 500-600 lb feeder steers, 800-900 lb feeder steers and D1, D2 cow prices at Edmonton from 1983 to 1987.

There is usually a heavy demand for lightweight feeder cattle in the months of March, April, May and June (figure 1). The heavy demand is a reflection of lower feeder numbers and the prospects of cheap gains and abundant pasture. Since fall-born calves

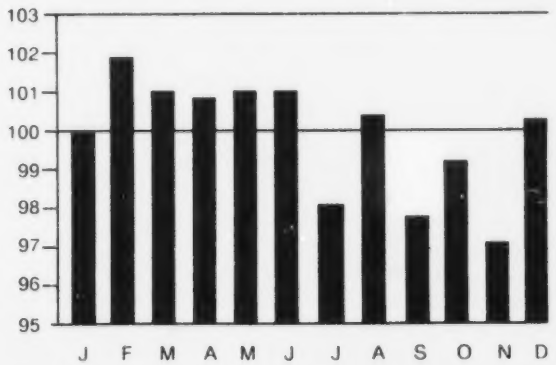

Figure 1. Seasonality of 5-600 lbs Feeder Steer Price Edmonton, 1983-1987

are generally weaned in March or April, they could be marketed during this premium price period. Marketing 500 to 600 lb calves immediately after weaning will return a 3 to 5 per cent price premium over the traditional October/November marketings for this weight of calf.

After weaning, calves can be placed either on pasture or in a feedlot. Figure 2 shows that September, October, November prices of 800 to 900 lb feeder steers are traditionally depressed from 2 to 3 per cent as compared to marketing either in August or in December. To obtain price premiums, producers can consider marketing pasture calves in August or placing them in a feedlot after the pasture period and marketing them after November. Fall-born calves could be marketed as finished cattle as young as 13 to 15 months of age. Figure 3 shows that November and December are traditionally good months to market fat cattle.

D1 and D2 cow prices (figure 4) are relatively high from March to July and are severely depressed in November. This is a reflection of the supply and demand for D1 and D2 carcasses. The price premium in the spring months coincides with the weaning time of fall-calving operations. Pregnancy checking cows during early spring will determine which cows are open and should be culled. Marketing cull cows in May would return up to a 22 per cent premium compared to equivalent beef cows sold in November. Cows losing their calf at birth in August or September should be sold immediately since the cow market generally declines from August through November.

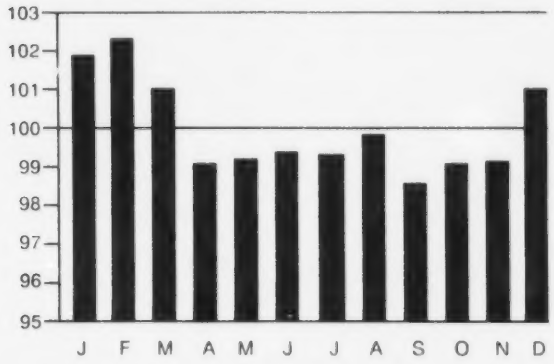

Figure 2. Seasonality of 8-900 lb Feeder Steer Price Edmonton, 1983-1987

Economics

The per cent calf crop weaned and average weaning weight are the most important output factors affecting profitability of any beef cow enterprise. Fall calving operations can be more productive than

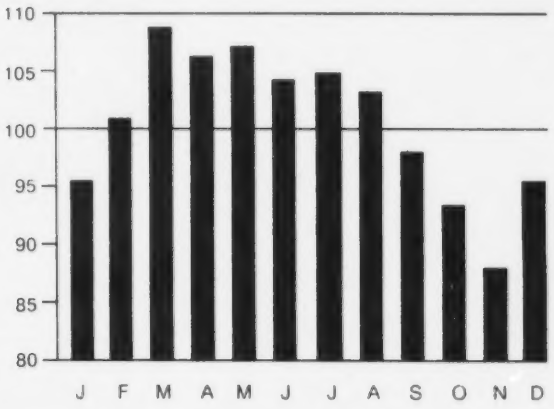

Figure 4. Seasonality of D1,2 Cow Price Edmonton, 1983-1987

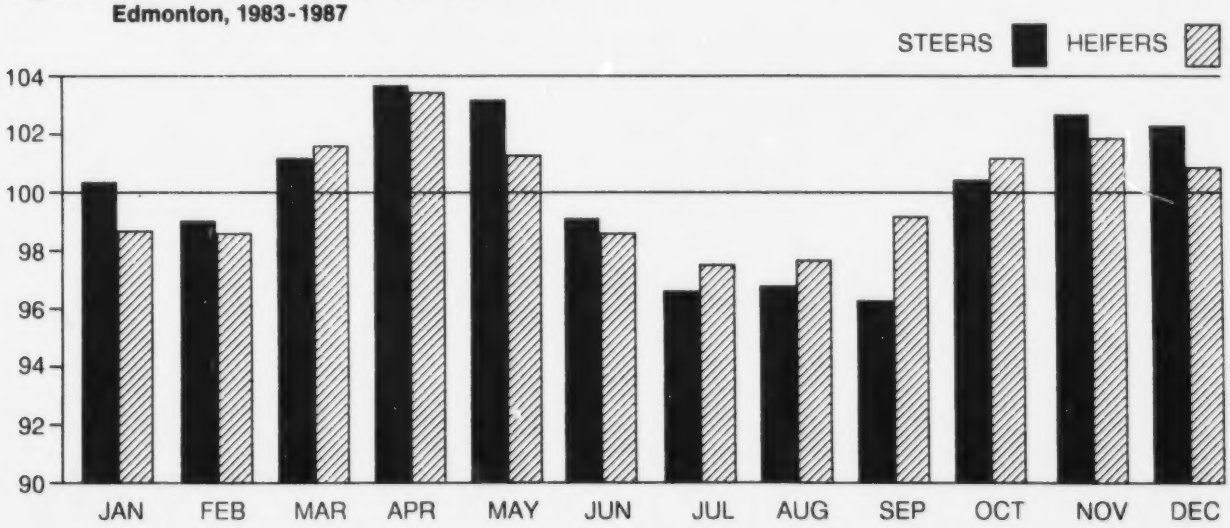

Figure 3. Seasonality of A1,2 Steer Heifer Prices Alberta Direct Sales, 1983-1987

spring-calving beef herds if they are properly managed. Fall-calving herds can achieve a higher percentage of calves born early in the breeding season, more calves born per cow exposed and lower calf death losses to weaning than spring calving herds. Therefore, one can expect fall-calving herds to wean 4 to 6 per cent more calves that weigh up to 20 lb heavier than spring-calving herds.

The extra performance from fall-calved cows is offset by the cost of providing creep feed to the calf, higher quality feed to the milking cow (table 7 and 8) and any changes to the facilities that may be needed. Feed costs could be an additional $50 per head (table 8) for a fall-calving cow. This includes both feed for the cow and creep feed for the calf. Pasture costs are perhaps $10 less for a fall-calving cow than a spring-calving cow since the fall-born calf will be weaned. Feed and pasture costs together could be at least $40 higher for fall-calving cows than spring-calving cows.

A survey of spring-calving herds by the Production Economics Branch of Alberta Agriculture in 1985 found per cent calf crop weaned and pounds weaned per cow exposed were 82.9 per cent and 410 lb, respectively. If fall-calving cows wean 4 to 6 per cent more calves than spring-calving cows then, lbs of calf weaned per cow exposed could average 430 to 440 lb for fall-calving cows. Given that fall-born calves are weaned in spring and that the market offers a price premium of 3 to 5 per cent at that time, then the information in table 7 applies.

Table 7

Economic Comparison Of Spring- And Fall-Born Calves To Weaning

	CALVING SEASON	
	SPRING	**FALL**
Calf Crop Weaned/Cow Exposed	82.9%	86.9 to 88.9%
Average Weaning Weight	495 lb	495 lb
Lbs Weaned/Cow Exposed	410	430 to 440 lb
3 to 5% Price Premium	$1.10	$1.13 to $1.16
Gross Return	$451	$486 to $510
Difference		$35 to $59

At weaning, there is potentially $35 to $59 available to offset the additional $40 cost for feed or facilities of a fall-calving beef herd. This assumes that there is no increase in calf weaning weight and does not include the increased value of cull cows marketed in the spring. Fall calving appears at least equal to spring-calving in profitability. Under certain circumstances the profitability of fall-calving herds can exceed that of spring-calving herds. It requires good management to obtain these results.

It is important that the cows nursing calves have access to adequate amounts of high quality feed so they can maintain their condition score at 2.5 until the breeding season is completed in late December or January. This often requires supplementing rations with high quality hay and grain when pasture quality declines in September or October.

If calves are retained on pasture after weaning, there is potential for greater returns from fall-born calves since gains on pasture will be more efficient and relatively inexpensive compared to winter gains for spring-born calves. For some operators the advantages and disadvantages will further influence their choice to use spring or fall calving.

Table 8

Feed Input and Cost Comparison (1100 lb Cow, Average Milk Ability)

Assumptions	**Spring**	**Fall**
Average Calving Date	Mar. 1	Sept. 12
Weaning Date (180 days)	Sept. 1	Mar. 12
Average Date Start Of Winter Feeding	Nov. 1	Oct. 15
HAY		
Medium Quality ($50/ton)	Maintenance 76 days x 22 lb	Maintenance 59 days x 22 lb
Good Quality ($60/ton)	Pre-Calving 44 days x 24 lb	—
Very Good Quality ($70/ton)	Lactation 81 days x 27 lb	Lactation 146 days x 27 lb
Cost ($/cow)	150.03	170.42
CREEP		
Cost ($/cow)		26.25
PASTURE		
Good Quality ($10/AUM)*	Lactation - 102 days	Lactation - 57 days
Medium Quality ($7/AUM)*	Post-Weaning - 62 days	Pre-Calving - 103 days
Cost ($/cow)	59.67	49.30
TOTAL FEED COST ($/cow)	209.70	245.97

* **1 cow** = 1 AU, 1 calf = 0.33 AU

Management Calendar

The management calendar (next page) can be used to plan the production year in a fall-calving herd. Other items important to the individual operator should be added in.

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1989 04 3M

FALL CALVING MANAGEMENT CALENDAR

	August	September	October	November	December	January	February	March	April	May	June	July
REPLACEMENT HEIFERS		- ID tag - booster vaccines to replacement heifers	Oct. 24 — Dec. 8 **BREED REPLACEMENT HEIFERS** - warble treatment - evaluate forage quality and determine if grain feeding necessary	- ensure adequate feedbunk space & minimal competition for feed		- feed separately from cows	Feb. 10 — March 20 **PREGNANCY CHECK** - check for external parasites (lice) & treat as needed	- ensure vitamin and mineral supplementation		- prepare for pasture with mature cows if on good pasture - fly control		sort pregnant heifers into calving pasture
COWS	Aug. 1 **CALVING - FIRST CALF HEIFERS** Aug. 21 **CALVING — COWS** - supervise calving	- plan winter feeding program - feed analysis - inventory supplies	- warble treatment - booster vaccines - evaluate cow condition - feed best forage available or hay or silage aftermath - determine if grain feeding necessary - move cows to winter feeding/ breeding area	Nov. 12 — Dec. 28 **BREED COWS** - ensure vitamin & mineral supplementation - bed to ensure cows are clean and warm - ensure adequate feedbunk space & minimal competition for feed		- consider early weaning - check for external parasites (lice) & treat as needed	Feb. 10 — March 20 **PREGNANCY CHECK** - ensure vitamin and mineral supplementation		- feed low quality roughage until turnout on pasture - prepare to market culls	- fly control	- turnout to pasture	- test for quality after harvest
CALVES	- supervise calving - ID and record calves - dehorn - vitamin ADE		**October 15** - start high quality creep feed to calves	- initial vaccinations - brand - castrate - bed to ensure calves are clean and warm - implant steers and non replacements		- check for external parasites (lice) & treat as needed - add/offer high quality roughage to calf creep rations	- booster clostridial vaccination - 15K/P13 vaccination	plan calf marketing program - wean re-implant	- feed grain (3-5 lbs/head/day) plus good quality forage - retain older heifers as potential replacements		ALTERNATIVES - to pasture - steers - heifers - to feedlot - sell Replacement Heifers - put on good quality pasture to ensure growth to 65% of mature weight by Oct. 15	- fly control
BULLS	feed analysis	**Sept 1** - determine if bulls needed - trim feet - evaluate bulls - select replacement sires - vaccinate bulls - order AI supplies	**Oct 24** - warble treatment and external parasites - bulls to replacement heifers - monitor activity	**Nov 12** - bulls to cow herd - moniter activity & health throughout breeding period	**Dec 8** - remove bulls from heifers	- pen separately and feed predominant roughage diet - ensure vitamin and mineral supplementation - check for external parasites (lice) & treat as needed - market cull bulls immediately for feed for fat market					- pasture bulls separately from cow herd - fly control	